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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/646,073	08/22/2003	David R. Shafer	KLAC0076	8450
30438	7590	06/15/2005	EXAMINER	
SMYRSKI LAW GROUP, A PROFESSIONAL CORPORATION 3310 AIRPORT AVENUE, SW SANTA MONICA, CA 90405			FINEMAN, LEE A	
			ART UNIT	PAPER NUMBER
			2872	
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Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/646,073	<b>Applicant(s)</b> SHAFER ET AL.	
	<b>Examiner</b> Lee Fineman	<b>Art Unit</b> 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 March 2005.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 43-99 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 43-99 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 August 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election of Species III in the reply filed on 28 March 2005 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. The reply filed on 28 March 2005 also cancelled claims 1-42 and added claims 67-99. Claims 43-99 are pending.

### ***Drawings***

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 804.
4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the immersion substance (claims 43-99) and a microscope with a flange (claims 47-48, 60, 70-71, 82-83 and 95) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing

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should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Claim Objections*

5. Claims 49, 61 and 62 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Independent claims 43 and 55 state “an objective constructed of a single glass material,” but claims 49, 61 and 62, which depend from claims 43 and 45, require two glass materials. It is not clear how a single material can also be two materials.

### *Double Patenting*

6. Applicant is advised that should claims 43-47, 66 and 78-82 be found allowable, claims 55-56, 59-60, 64, 67, 90-91, 94-95 and 99 will be objected to under 37 CFR 1.75 as being a

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substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 43, 46-48, 50-51, 55, 59-60, 63,65, 69-71, 73-74, 78, 81-83, 85-86, 90, 94-95 and 98 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 27, 33 and 37 of copending Application No. 10/434374 in view of Yonekubo, US 4,108,794 or Suwa, US 5,825,043.

Application No. 10/434374 discloses an objective constructed of a single glass material with a focusing lens, field lens and Mangin mirror element having diameters less than 25 millimeters. Application No. 10/434374 lacks the light energy going through an immersion substance to the specimen. Immersion substances, including water and oil are well known in the microscope/lithography art to obtain better imaging performance. For example, Yonekubo or Suwa teach using an immersion substance, including water and oil, to obtain better imaging

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performance (see Yonekubo, columns 1-2 and Suwa, column 3, lines 24-33). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a well known immersion substance with the objective of Application No. 10/434374 to provide better imaging performance. The method of utilizing the structure of the claim is inherent therein.

This is a provisional obviousness-type double patenting rejection.

### *Claim Rejections - 35 USC § 103*

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 43-49, 50-51, 53-56, 58-74, 76-86, 88-91 and 93-99 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shafer et al., US 2001/0040722 A1 in view of Yonekubo or Suwa.

Regarding claims 43, 46, 50-51, 53-55, 59, 63, 65, 69, 73-74, 76-78, 81, 85-86, 88-90, 94 and 98, Shafer et al. disclose an objective (fig. 3) constructed of a single glass material (page 6, section [0082]) for use with light energy having a wavelength in the range of approximately 157 nanometers through the infrared light range (page 6, section [0082]), comprising: at least one focusing lens (308) having diameter less than approximately 100 millimeters (fig. 3) receiving said light energy and transmitting focused light energy; at least one field lens (304 or 307) having diameter less than approximately 100 millimeters (fig. 3), receiving said focused light

energy and transmitting intermediate light energy; and at least one Mangin mirror element (306) having diameter less than 100 millimeters (fig. 3) receiving said intermediate light energy and providing controlled light energy to a specimen (309, not shown); wherein the objective is optimized to produce minimum spherical aberration, axial color, and chromatic variation of aberrations (page 7, sections [0083]-[0085]); wherein the at least one Mangin mirror element is optimized to produce spherical, axial color, and chromatic variation of aberrations to compensate for aberrations induced by the focusing lens group (page 6, section [0081]); and wherein each lens used in the objective has a diameter of less than approximately 25 millimeters (fig. 3).

Shafer et al. disclose the claimed invention except for the controlled light energy going through an immersion substance to the specimen. Immersion substances, including water and oil are well known in the microscope/lithography art to obtain better imaging performance. For example, Yonekubo or Suwa teach using an immersion substance, including water and oil, to obtain better imaging performance (see Yonekubo, columns 1-2 and Suwa, column 3, lines 24-33). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a well known immersion substance with the objective of Shafer et al. to provide better imaging performance. The method of utilizing the structure of the claim is inherent therein.

Regarding claims 49, 61-62, 72, 84 and 96-97, Shafer et al. also disclose in fig. 9 an objective for use with light energy having a wavelength in the range of approximately 157 nanometers through the infrared light range with field and focusing lenses and a Mangin mirror element less than approximately 100 millimeters (fig. 9) wherein only two glass materials are used (see table 5) comprising fused silica and calcium fluoride (see table 5). Shafer et al. disclose the claimed invention except for the controlled light energy going through an immersion

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substance to the specimen. Immersion substances, including water and oil are well known in the microscope/lithography art to obtain better imaging performance. For example, Yonekubo or Suwa teach using an immersion substance, including water and oil, to obtain better imaging performance (see Yonekubo, columns 1-2 and Suwa, column 3, lines 24-33). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a well known immersion substance with the objective of Shafer et al. to provide better imaging performance. The method of utilizing the structure of the claim is inherent therein.

Regarding claims 58 and 93, Shafer et al. further disclose said objective (fig. 3) having a numerical aperture of greater than approximately 1.0 at the specimen (page 7, section [0085]).

Regarding claims 44-45, 56, 64, 66-68, 79-80, 91 and 99, Shafer et al. in view of Yonekubo or Suwa as set forth above disclose the claimed invention except for wherein said objective has a field size of approximately 0.15 mm and a numerical aperture of approximately 1.2. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make objective have a field size of approximately 0.15 mm and a numerical aperture of approximately 1.2, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. One would have been motivated to have the objective have a field size of approximately 0.15 mm and a numerical aperture of approximately 1.2 for the purpose of providing a larger field of view. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977) See also *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claims 47-48, 60, 70-71, 82-83 and 95, Shafer et al. further disclose said objective having a long working distance used with a microscope (figs. 1 and 2) having a flange



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(at 102 or 202) but is silent as to the location of the flange being approximately 45 millimeters from the specimen during normal operation or at least approximately 100 millimeters from the specimen during normal operation. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the flange be approximately 45 millimeters from the specimen during normal operation or at least approximately 100 millimeters from the specimen during normal operation, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. One would have been motivated to have the flange be approximately 45 millimeters from the specimen during normal operation or at least approximately 100 millimeters from the specimen during normal operation for the purpose of having an appropriate working area for interacting with/changing the specimen. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977) See also *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

11. Claims 52, 75 and 87 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shafer et al. in view of Yonekubo or Suwa as applied to claims 43, 66 and 78 above and further in view Deutsch et al., WO 01/57563 A2.

Shafer et al. in view of Yonekubo or Suwa as applied to claims 43, 66 and 78 above disclose the claimed invention except for the immersion substance being a silicone gel. Deutsch et al. teaches using a silicone gel as an immersion substance (page 2, lines 18-20). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the immersion substance be a silicone gel as suggested by Deutsch et al. to provide more controllable flow characteristics to the immersion substance.

12. Claims 57 and 92 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shafer et al. in view of Yonekubo or Suwa as applied to claims 55 and 90 above and further in view Allen et al., US 6,785,051 B2.

Shafer et al. in view of Yonekubo or Suwa as applied to claims 55 and 90 above further disclose wherein said at least one Mangin mirror element (306) comprises a single lens/mirror element comprising substantially curved concave surface (top surface in figure); and a second minimally curved surface (bottom surface in figure);

Shafer et al. in view of Yonekubo or Suwa as applied to claims 55 and 90 above disclose the claimed invention except for wherein both surfaces of the single lens/mirror element are reflective with small central apertures through which light energy may pass. Allen et al. teach an objective (fig. 2) with at least one Mangin mirror element comprises a single lens/mirror element (60) comprising substantially curved concave surface (fig. 2); and a second minimally curved surface (fig. 2) wherein both surfaces of the single lens/mirror element are reflective with small central apertures through which light energy may pass (column 7, lines 22-34). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the Mangin mirror of Shafer et al. in view of Yonekubo or Suwa a double-reflecting one with central apertures as suggested by Allen et al. to be able to make a more compact objective configuration.

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lee Fineman whose telephone number is (571) 272-2313. The examiner can normally be reached on Monday - Friday 7:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
LAF

June 13, 2005

  
MARK A. ROBINSON  
PRIMARY EXAMINER